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several years—viz. in 1664, the autumn of 1665, and in 1666. In 1664, he says, the figure of *Saturn* was the same as in 1666 —*i.e.* like the small fig. at the end of the postscript; and that in 1665 it was "what Sir R. Moray communicated," which is, no doubt, that alluded to in the account in the *Philosophical Transactions*, and represented in fig. 3.

One other point is perhaps worth inquiry. The Ball referred to by Huyghens is spoken of as D. Ball, whilst the Ball of the *Philosophical Transactions* is William Ball. May they not have been two different persons?

London: 1883, *March* 3.

[*Note on the above Paper, by Professor Adams.*—The explanation seems to be that the account of Ball's observation is accurate, and the figure given in the *Philosophical Transactions* correct. But this ignores the fact that all modern observations show that *Saturn's* ring has no such figure as that represented by the paper cutting, and it also supplies no reason for the suppression of the plate containing the extraordinary figure of the ring. The suggestion that the D. Ball spoken of by Huyghens is a different person from the William Ball who made the observations is quite untenable. Huyghens wrote in Latin, and D. Ball is merely an abbreviation for *Dominus* Ball. There were two Balls, William and his brother, but the former was the astronomical observer.]

Report of the Work of the Royal Observatory, Cape of Good Hope, during the year 1882. By David Gill.

During the past year the general programme of last Report has been systematically followed, and some additional researches have been undertaken.

1. The observations for the telegraphic connection of the longitudes of Aden and this Observatory, including the necessary personal-equation determinations, were completed on February 22, 1882, and the places of all the stars employed in the work have been re-observed with the Transit Circle.

The reductions of all these Transit Circle observations and of the personal-equation determinations are completed, as also are the determinations of clock error at all the stations except Aden. The latter were delayed in expectation of recent places of a few Northern circumpolar stars. The whole of the reductions of this work will now be completed within a few weeks.

2. The places of the Moon from Hansen's Tables, corresponding to the instants of occultations observed at the Cape previous to 1860, have been communicated by Professor Newcomb. The resulting equations have been computed, and the complete work only now requires the application of small corrections for error in the assumed longitude of the Cape.

3. The Cape Catalogue for 1850 has been delayed in comple-

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tion by the severe pressure of current work, and this pressure has been increased by the illness of Mr. Freeman, Fourth Assistant. The reduction of corresponding stars in Mr. Stone's Catalogue to the Equinox of 1850 has, however, been made, and the whole only now requires final revision and comparison.

4. The meridian observations of 331 standard stars for the future zone observations of Professor Schönfeld's *Durchmusterung* from N.P.D. 90° to 120°, as also of the specially selected stars observed for refraction in conjunction with Leiden, have been proceeded with. The requisite number of observations have been obtained for all these stars except for some of those between 22^h to 5^h R.A. inclusive—where the observations of *Victoria* and *Sappho*, and the absence of observers in connection with the Transit of *Venus*, interfered to prevent their completion.

The meridian observations of the past year also include circumpolar stars, comet comparison stars, special observations of α and β *Centauri*, stars used in researches in stellar parallax, zones of stars observed in conjunction with the German Transit of *Venus* Heliometer expeditions, stars of which occultations by the Moon have been observed, and some comet observations.

In the year 1882 the number of observations with the Transit Circle has been as follows:—

In Right Ascension	... ...	4530 observations
Polar Distance	... ...	3844 ,,

248 determinations of level, 253 of azimuth, 161 of collimation.

The observations are all reduced to the end of 1882, but examination is in arrear for the greater part of that year.

5. Thirty-six occultations of stars by the Moon have been observed during the year 1882.

6. *Comets.*—Comet *Wells* was observed with the $8\frac{1}{2}$-ft. Equatorial on thirty-nine days between June 14 and August 16 inclusive. The results are published in the *Monthly Notices* (vol. xliii. No. 1).

It was also observed on seven days between June 17 and 25 with the Heliometer.

The Great Comet of 1882 was observed by Mr. Finlay, Chief Assistant, at 17^h on September 7. His observations of that morning appear to be the first accurate determination of the place of this remarkable body.

The Great Comet has been observed here since that date on every day on which it has been visible, and the following observations have been secured (till 1883, February 4, inclusive):—

With the Heliometer	... ...	31 observations
Equatorials	... ...	65 ,,
Transit Circle	...	17 ,,
Altazimuth	... ...	3 ,,

The comparison stars are under observation with the Transit Circle.

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The unprecedented observation of the disappearance of this comet at the Sun's limb was made by two observers on September 17 (*Monthly Notices*, vol. xliii. No. 1).

Successful photographs of the comet were secured on six days. The last three of these show some details that could not be so distinctly seen with any telescope or opera-glass, and all stars down to 8 or 8½ magnitude are shown. Paper copies have been forwarded to the Society.

A long series of drawings and measures of the nucleus have been secured.

Barnard's Comet has been observed with the Transit Circle S.P. on nine days.

7. The long series of Heliometer observations (referred to in last Report) undertaken for determining the annual parallax of the more remarkable Southern stars is nearly concluded, and the results will be ready for publication before the end of the current year.

8. The observations of *Victoria* and *Sappho*, for determining the solar parallax by Galle's method, were carried out in July, August, and September, according to the programme circulated by H.M. Astronomer at the Cape.

Victoria was observed on 54 nights.
Sappho „ „ 22 „

The following Reports have been received from Directors of Observatories who have kindly co-operated in the scheme :—

	Victoria.	Sappho.
Dr. Ball, Dunsink ...	12 nights	10 nights
Dr. Engelmann, Leipzig...	21 „	11 „
Prof. Bredichin, Moscow .	36 „	4 „
„ Krueger, Kiel ...	14 „	7 „
„ Schultz, Upsala ...	19 „	9 „
Dr. de Ball, Bothkamp ...	9*	

* This Report only extends to Sept. 3; the observations were being continued.

No Reports have yet been received from Paris, Strassburg, Potsdam, Clinton (U.S.), or Rio di Janeiro. A comparison between the observations of Gill and Elkin at the Cape with different telescopes, shows (if the observations of both observers are assumed equally good) that the probable error of one measure (eight bisections) is ± 0″·16.

Details of observations have as yet only been received from Dunsink, Leipzig, and Moscow. From these three Observatories, and for *Victoria* alone, there are sixty-four comparisons of $\Delta\,\delta$ in the Northern hemisphere, which correspond with a like number of separate comparisons at the Cape; or, if corresponding comparisons are not restricted to the same night, there are seventy-eight of such corresponding comparisons.

There is, therefore, reasonable ground to conclude that the

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resulting value of the solar parallax from the whole of these observations will probably be at least as valuable as that derived from the Transit of *Venus* expeditions.

Victoria and *Sappho* have also been observed on the meridian—

Victoria on 37 nights.
Sappho on 18 „

The whole of the comparison stars (seventy-two for *Victoria* and sixty-six for *Sappho*) have also been observed on the meridian at least three times each; the more important stars much oftener.

The Heliometer observations of the "Scale-Value" and "Distortion-Stars" are not yet completed, but will be so in June and July of the current year.

9. The Observatory has co-operated to its utmost extent in the observations of the Transit of *Venus*. Mr. Finlay, Chief Assistant, and Mr. Pitt, Third Assistant, occupied a station at Aberdeen Road. Both contacts at ingress were observed by both these observers. The observations for time, latitude, and longitude at Aberdeen Road are reduced, and the results have been communicated to the British Transit of *Venus* Committee.

At this Observatory the internal contact at ingress was observed by six observers, and a number of Heliometer observations of the least and greatest distance of the centre of *Venus* and the Sun and of the diameter of *Venus* were obtained.

Programmes for longitude operations, and lists of time and azimuth stars were prepared for the Transit of *Venus* stations at Montague Road (British) and Wellington (American), and the necessary time observations were made, and signals exchanged with each on four nights.

Time signals were also sent to Natal, Grahamstown, and Port Elizabeth, before and after the Transit; as also to Natal, in conjunction with the operations connecting the longitude of Madagascar with this Observatory.

10. The longitude of Lady Donkin's Monument, Port Elizabeth, has been connected by telegraph with this Observatory, under the direction of H.M. Astronomer, but at the expense of the Government of the Cape Colony. The comparison of this longitude with the results of a trigonometrical connection of the same points, made by Captain Bailey, R.E., 1859–62, gives an arc of 7° 40′ of longitude (the latitudes of the extremities are nearly identical) possessing considerable geodetic interest.

11. *Instrumental Changes.*—A new 6-inch Equatorial by Grubb has been mounted, originally to observe the Transit of *Venus*, but by permission of the Committee it was fitted with micrometric appliances, and was partly employed in the observations of *Victoria* and *Sappho*. The instrument requires considerable alterations, however, to render it a complete or satisfactory instrument for other than star-gazing purposes. Optically it is an admirable instrument.

The old Wind Tower has been altered, a pillar built, and a

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Dome erected to receive the 6-inch Equatorial. The whole forms a suitable and convenient Observatory.

The Government of India, on the representation of General Walker, has lent the great 3-foot Theodolite (constructed under the superintendence of Colonel Strange) to H.M. Astronomer for use at the Cape. This instrument has been employed in observing the Great Comet and the Transit of *Venus*, but will be chiefly devoted in future to determining the Declinations of Southern stars by observations of the azimuth of their greatest elongation.

Plans have been prepared for providing new collimators for the Transit Circle, and these so mounted as to permit the independent determination of the horizontal point to North and South, and observation of stars by reflection to 70° Z.D. The plans also include the erection of meridian marks to North and South, viewed by lenses of long focus. The plans are in the hands of Mr. Simms, and it is believed they will be completed about the middle of the current year.

12. The system of time signals has been further extended and improved; a clock controlled from the Observatory is also being erected at the entrance of the Cape Town Docks.

The tidal observations have been begun at East London; those at Table Bay will begin in March of the current year. The tide-gauges for Durban and Port Elizabeth have been received, but are not yet mounted.

The meteorological observations made at the Royal Observatory in the year 1881, together with those made in different parts of the colony, have been printed in the Reports of the Cape Meteorological Commission.

[The above Report arrived too late for insertion in the Annual Report of the Council.]

Errata.

Vol. xliii. p. 134, line 29 from top. *For* +0″·24, *read* −0″·24.
p. 142, line 22 from top. *For* LL. 1779·39, *read* LL. 1797·39.

Erratum in the Annual Report.

The six lines "He also . . . . Observatory," on pp. 159–60, are out of their place: they belong to the obituary notice of Mr. Walker, on pp. 183–4.